

BRAINS MIXED WITH MORTAR IN NEW UNION STATION



STURDY SUPPORTS OF NEW BUILDING.

Foundations of the Union Station, showing the retaining walls in process of construction and the heavy piles of masonry.



THE APPROACH TO THE TUNNEL.

Deep cut through populous section of the city at First and D Streets southeast, where the face of the earth is being changed.

Foundations of Great Building Deep Sunk in the Earth, Whence Massive Piles of Masonry Are Now Emerging.

THERE will be plenty of gray matter mixed with the mortar of the new Union Station. The engineering problems were difficult enough at the first, turning, as they did, upon an almost complete change in the topography of a populous section of a great city. They have become increasingly more difficult as the work advanced, and the discovery of quicksands and other impediments has delayed and retarded the architects and contractors of the structure and its approaches.

The eastern part of the city presents just now a busy, if somewhat uncouth appearance. In several sections great gaps are being cut through the streets, wide areas are being leveled, busy little engines, panting and puffing with importance, run on temporary tracks up and down the cuts, great steam shovels swing ponderously from one side of the chasm to the other, while over all ring out the words of command that put all this life into motion.

Of course, the work that is being done now is largely preliminary; it will be a year or two before the station even begins to assume the outline of the appearance it will wear when completed. The foundation is not yet laid, the approaches have not been arranged for, the rail for the tracks is still, very possibly, iron ore in some Pennsylvania hillsides. Other difficulties may come, and probably will, as the work proceeds, but those in charge think they have

had enough to try the patience and test the ingenuity of the ordinary man. Also there has been some matters of money.

Not Built on Sands.

The initial difficulty was at the station site itself, on Massachusetts Avenue. The great structure of white granite that is to be erected requires a massive and firm foundation. The tracks and train sheds for trains from the South, on account of the grade of the surrounding country and the approaches, must be thirty feet below the level of the station building, and access to them will be by means of stairways and elevators. The retaining walls that are to keep the earth from crushing in upon the building are many feet in thickness, and the stone piers, upon which the floors will rest are like the columns of the Giant's Causeway.

The engineers had to take into account the difference in elevation of the country to the north and south of the city, and this is responsible for the vast amount of excavation that had to be done. While the Southern trains are to reach the sheds through the First Street tunnel, those from the North will come in over a viaduct spanning the lowlands, and will reach the station but a few feet below the main floor. To provide for all these differences three floors were provided for by the architects of the building.

The work has been slow. It was very much a case of "the more haste, the

less speed," and the contractors have realized this quite. Every stone of the foundations has been critically inspected, and every barrel of cement watched over with jealous care. Box cars run on inclined tracks to the level of the upper floors and from these the cement beams that are to give them additional strength are lowered by cranes into the pit where the men are working.

The Obstacles Surmounted.

One of the troubles of the work was encountered when the excavation of the approaches in the northeast section of the city was begun. The right of way crossed the water and sewer mains of the city system, and ten donkey engines had to be employed to keep the trenches from being flooded. They were at it night and day, and are still, consuming many hundreds of tons of coal and eating up profits the contractor probably expected to have for his very own.

The discovery of quicksands has fortunately been only an occasional incident of the work, and one which has little retarded its progress. Washington stands on a foundation reasonably solid—too solid, sometimes, for rapid work even with the steam shovels of the present. When the quicksand has made its appearance the problem presented yielded to treatment.

The cut which is being made near the intersection of First and D Streets southeast, to the tunnel at First and B, is in itself a gigantic undertaking. On this hundreds of workmen are employed, with a full array of puffing dummy engines to assist their own strenuous efforts. Cars pulled by the engines transport the excavated dirt to higher altitudes, when it is dumped into sections of the work that require filling rather than excavating. Heavy retaining walls are being built also along the

sides of the cut, which will be bridged for the passage of traffic at the intersection of the cross streets. Work on the tunnel has not yet begun. This will run thirty feet under the earth and will require an enormous expenditure of time, money, and energy. To this the cut is simply the approach, designed to give the Pennsylvania Railway trains access to the eastern side of the station. They will approach the sheds on their lower levels.

Plaza Means Much Work.

One of the problems that remain is the construction of the elliptical plaza, nearly ten acres in extent, which is to form the approach to the station. In order to make the plaza level conform to that of the building it will be necessary to fill in the space to a height of twenty-five feet. The beauty that will be added to the station by the plaza will unquestionably reward all the efforts that are put upon it. Not only will the broad expanse of green be beautiful in itself, but it will frame the white palace beyond it in a setting adapted to its esthetic needs.

Immense amounts of work have already been done. Hills 200 feet high have been demolished to permit the advance of the right of way, and millions of cubic yards of earth have been excavated; other millions remain to wait the approach of the shovel. Granite retaining walls are being put up everywhere. The end is yet in the distance.

There have been discomforts, too, connected with the work. The wind has swept down the cut with the speed and fury of a hurricane, and when it had loaded itself up with the cold of higher latitudes it has served by contrast to make the fires in the engines the only comfortable things in sight. The laborers have not always had an especially happy time of it.

There is the more truth in this from the fact that the laborers for the most part are natives of sunny climes. Italians and negroes are employed almost exclusively. In a ratio of ten to the former to one of the latter. Working in double shifts, they have kept the big shovels at work day and night.

Sound Is an Annoyance.

The sound has been a perpetual annoyance to the people of the neighborhood. Plunging into the hillside ahead the shovel would scoop up enough earth to fill one of the little flat cars pulled by the dummy, and two or three efforts on the part of the big machine would suffice for a trainload. Dragging the cars behind it, the engine loosed struggling up the incline, where larger cars, behind larger engines, are always waiting to receive their loads.

The incessant ring of hammer and chisel on masonry is another of the neighborhood trials in sections where the work is in progress. There is music of a kind in the sound, but it is not just exactly of the type to soothe one to rest in the early watches of the morning. Much of the profanity turned loose in Washington during the past few months is reported to have had its origin in subway noises, various in kind, but universally disagreeable in effect.

The addition to the population of Washington of so many hundreds of Italian laborers has not been without its effects—some humorous, some pathetic, some tragic. Their ignorance of the language has made them the easy prey of sharpers of their own race and tongue, who played upon their gullibility and absorbed their earnings.

One pitiful case was reported over the desk at the First precinct police station, a short while since. Two Italians, father and daughter, appeared at the

Great Hills Fall Before the Onslaught of Steam Shovels, to Make Clear the Way for the Trains of the Future.

station and asked the assistance of the sergeant on duty. Their request was made through an interpreter, for they were able themselves to speak scarcely a word of English.

The Unfortunate Italians.

It appeared they had rented a pair of small rooms in a house in an obscure quarter of the city, for which they had paid a week's rental in advance. They were shrewd enough then to refuse to yield to further extortion, and the other men on the premises had determined to get rid of them. They effected this by waiting until the man and girl were out and then locking the doors to their rooms. When the unfortunate returned it was only to be told that if they desired to come in they would be thrown out into the streets, and that a worse fate would very likely befall them.

The sergeant told them he could do nothing without a warrant and directed them to a Justice of the peace, to secure process for the recovery of their few small belongings. This, happened, however, at midnight, when justices of the peace are not in their offices, and the advice did not avail until the morning. Then the Italians got their property, but not their money, that they had paid in the first place for the rent of the rooms. Many other cases of like character have occurred, and in very few instances has there been any re-

dress. The victims were always too densely ignorant to put in motion the machinery of the law that would have compelled the knaves to disgorge.

Much Money Disbursed.

One of the benefits of the work to the city has been the money turned loose each week among the merchants of Washington. Thousands of employees have come here from other parts of the country, some skilled and high-salaried men whose advent is a distinct gain. The smaller fry contribute their mites. The total is a great gain. When it is considered that this money weekly replenishes the coffers of merchants who might not otherwise be making an elaborate living there ought to be rather fewer protests than have come since the beginning of the construction from citizens and citizens' associations. With such petitions and protests the District Commissioners have been fairly besieged.

The work goes on steadily. Interruptions there have been, and difficulties, but the first have passed, and the others have been surmounted. The great engineering problem approaches slowly its final solution. The new bridge across the Anacostia River will be a model of beauty and strength. The station will be a credit to the Nation's Capital, and according to competent figures that of the finest buildings of its kind in the world.

SOME PERTINENT OBSERVATIONS ON MODERN PHYSICAL CULTURE

By WILLIAM H. MACDONALD,
The Famous Baritone of the "Bostonians."

William H. MacDonald, the famous baritone of the "Bostonians," has within the past few years given much time and study to the various systems of physical culture as practiced in this country and in Europe. Since and during his college days he has always been athletically inclined, and while studying music and drama, he has won several medals. Mr. MacDonald, now "in the full strength of years," and approaching the afternoon of life, owes his youthful vitality and good health to the right way of living and the love of out-door sports and exercise. He has written some observations on physical culture, with suggestions, especially for The Times, and they appear here today for the first time in any paper.

ALL the current physical culture "systems," and much of the "literature," magazine, circular, and other, on the same subject, can be condensed into a few simple, practical rules for those who care to indulge in this health adjunct and producer. For, in spite of the many silly fads and extremes, and numerous "fakes"—physical culture is, as it always has been, if exercised moderately and intelligently, a means of retaining good health and improving bad health. The purpose of this article is not to show how a weakling can become a bander in two days or how an imbecile can turn into a Plato in one week. Nor shall I attempt to prove that a dying consumptive can, by means of a few physical movements, be cured and become strong.

At the same time, in not endeavoring to show how these miracles can be accomplished by so-called physical culture, I shall not try to disprove the theories set forth by men whose business it is to do these things. For some of these very "theories" would be excellent aids to right living if reduced to a common sense basis.

The one great harmful tendency with those who take up various forms of physical culture to improve their health, or to become strong, is in overdoing the matter and becoming too enthusiastic.

In short, moderation in physical culture is as important as it is in anything else.

Moderation Essential.

I have elaborated on this point, because I think over-enthusiasm is the chief drawback and earliest pitfall in the pursuit of physical culture.

It is my purpose to lay before the reader a few simple, easily mastered and applied rules of common sense living and of exercising that may be of value to the busy person who might be able to devote the little time necessary in following these rules, to become generally stronger and to feel better. There is perhaps no "system" that is advertised in this country that I have not taken up and tried, and I have also experimented and studied various systems in Europe notable for the names of the originator of the particular school, and for the exorbitant prices charged for "learning" them. Many of these systems had considerable merit; almost all of them had some good points, and none were exactly harmful, unless it was the exorbitance of the "professor's" rates.

To the person who is going in for any specific training, there are many schools and systems of merit both in this country and Europe. The person who wants to be cured of disease of various kinds, will find some of the sanitariums of Scotland and Switzerland, where they combine moderate physical culture, of a specific and also a general nature with sensible living, together with intelligent medicinal care, productive of better results than from any other one thing I know of—from physical culture and Christian Science to the most modern "orthology" medicine has ever known.

System Is Eclectic.

The suggestions that follow are the result of all the "systems" I have investigated and paid for. For this latter reason, and because of the fact that I claim none is original, I do not feel that I am writing under a cloud. And so with an untroubled conscience, I lay before The Times readers these few suggestions that have the advantage of not being able to do harm, if they do not accomplish some good. I honestly believe, however, if they are followed faithfully, you who will try them, might be the

winner by having your indigestion improved—it is already bad—your muscles strengthened, and your general health better.

The best time to do these few and simple movements is in the morning on rising. It is best to exercise nude. Open the window wide. There is no danger of catching cold, for the exercises are brisk and spirited. For, if they are listless, they will accomplish little or no good.

A movement that combines the advantages of half dozen others, which is an "eye opener" and a splendid circulation producer, is as follows:

Exercise No. 1.

Bringing into play almost every muscle, and inducing all-around circulation.

Stand erect, back to the wall, about a foot and one-half from it. Knees absolutely stiff; raise hands above head, elbows stiff, reaching as high in the air as possible, and keeping feet squarely on the floor. When you think you have reached as high as possible, try to reach "a little higher." With knees still stiff, feet on the floor, hands upstretched as far as possible, bend the waist only, touching finger tips to the floor. Bend back again, touching finger tips to the wall. Repeat the movement 15 times the first day, 15 the next, 20 the next, 22 the next, and 25 times thereafter.

Each day step a little further away from the wall, gradually reaching and bending back. If you cannot touch the floor without bending your knees the first day, go down as far as you can, endeavoring to go farther each day. In a few days you will find that you can touch the floor without any difficulty.

Exercise No. 2.

Breathing exercise. To expand the lungs and for general strength.

Stand erect near the open window, getting unobstructed whiffs of the cool, fresh air. Hands clasped over head, abdomen in, shoulders well back, chin in, lean a trifle forward. Open the mouth and breathe in deep, drawn gasps, using the voice, somewhat, breathe as "deep as your toes." It is very important to make the gasps long drawn and deep. Do this with short intermissions for two minutes. Then close the mouth, and in the exercise that follows breathe in the same manner, only through the nostrils. Hands to the side, lift them gradually, slowly, and with some resistance, above the head, drawing the breath in very deeply

while your hands are going up. Repeat this about one minute.

Exercise No. 3.

One of the best known movements for stomach troubles, at the same time not acting as a flesh reducer.

Feet and palms of hands on floor with abdomen facing the ceiling. Legs from the knees down should be perpendicular. Arms occupy a relative position. The first position of the body should describe the lower half of an "H," the second position describes an "M." With the arms and legs straight and stiff, and the top of the body in a straight line, "dip" up and down. Repeat twenty-five times.

Exercise No. 4.

For developing the shoulders and expanding the chest.

Stand erect near the open window. Hands closed in front level with the eyes, elbows straight. Bring arms back as far as the level of the eyes. Repeat fifty times.

Quick rub down with coarse towel.

Exercise No. 5.

(For same results as No. 4.)

Arms outstretched to sides. Describe small circles rapidly until quite tired. Arms outstretched in front. Describe small circles in same manner. Always keep the elbows straight.

Shower bath or tub. Water from the faucet to cold, as the system can stand. Brisk rub down.

Exercise No. 6.

Stand erect near open window, with hands at side. With chin in, shoulders well back, chest slightly leaning forward; sit and rise, working more or less on the toes. Practice this until the movements can be accomplished without falling forward or sideways.

Before forgetting it, by the way, a brisk walk, only around the block, if more time cannot be spared, breathing deep, deep, deep. Breakfast.

There is another movement, or two movements, in fact, that can be substituted for No. 3, provided one wants to reduce his weight, especially around the abdomen. In one may will recognize President Roosevelt's strenuous "kicking" movement. If you do not believe it is strenuous, try it.

Exercise No. 7.

For stomach trouble and for reducing the abdomen.

Lie flat on your back on the bed, or floor, hands clasped together under your head. With legs stiff, raise them as

high as possible. Still lying on the back (this is another movement).

Hands at the side, keeping the legs stiff and flat, raise the upper part of the body; recline and repeat steadily until tired.

If one has stomach weaknesses, he should "go strong" on the exercises that bring into play the muscles of the stomach. Another good movement for this purpose follows:

Exercise No. 8.

For making bad stomach good—Stand erect, hands on the waist. With knees stiff, move the upper part of the body down and up. Repeat twenty-five times.

If you do not know of a quiet exercise that is more effective for helping indigestion and kindred complaints than proper walking in the open air. And speaking of air, in my opinion ten minutes' exercise out doors is more valuable than an hour in the "gym" or in the house. If you frequently could spend a half day walking, riding horseback, or in the indulgence of any healthy outdoor sport, health culturists, Christian Scientists, and many of our worthy medicals would seek other channels of earning dollars—while you would be learning sense. While several years have intervened since I was captain of my college skating team—a sport that can scarcely be found on the roster of college athletics today—I still have a love for this recreation, and very frequently do two Dutch numbers of our company and myself embrace the various opportunities and pitfalls—the winter's skating ice affords. And it is not to be wondered at that the men and women of our company—or of any other singing organization—who are most enthusiastic in outdoor exercise and in the use of the "stick-in-doors and afraid-of-air" people are the very ones who suffer the most.

How to Walk.

The majority of people do not walk correctly, and do not get the full benefits of this delightful and cheap exercise. I agree at least on one point, with the faddists, extremists and others in the statement that most of us do not breathe correctly. The surest way of correcting this defect in the automatic performance of our make-up (not theoretically speaking) is to breathe very deeply, all the time. If we throw the shoulders far back, keep the chin in, the abdomen in and lean the chest slightly forward, you will walk properly and

come very near breathing properly without knowing it. And if you walk rather briskly and far, and are in good company, you will have accomplished more good, and immediately feel the result of it, than you could by one week's work spent in a gymnasium. And it is the next best thing to skating, horseback riding, or even baseball.

I have often been asked how frequently, and in what way to bathe to

conform with the rules of physical culture. Really, the rules of physical culture conform to the common rules of civilization. And the bath rules, as has been the same since the days of Caesar and Agrippa, said something or other on the subject.

With no intention of precipitating a controversy with our learned Chicago friend, I should say: "Bathe to keep clean, not to get clean."

Heavy Cost of War

IT is not merely a struggle between Slav and Oriental which is in progress in the Far East, writes Frank A. Vanderlip, former Assistant Secretary of the Treasury, in the "World's Work."

It is a battle between the rouble and the yen, a measuring of Slav and Oriental financial power. In the final outcome of this struggle as much may depend upon the strength which the treasures of the two countries will develop under stress as upon the fighting qualities of their warships and brigades.

Give Deep Concern.

Ministers of finance have as great influence on military history as do ministers of war.

In this Russian-Japanese struggle it is certain that the expenditures which the war must entail have given the greatest concern to the finance ministers of both nations.

The credit of neither has been the highest in the world's financial centers. Russia, however, has great superiority over her antagonist when it comes to a measure of financial strength in the markets of the world.

Russia Is Strong.

Whatever differences there may be regarding the moot question of annual deficits, there can be no denying the enormously strong position in which Russia finds herself today if she is to stand the strain of long-continued war expenditures.

The accounts show that with the closing of 1903 the gold in the state bank and in the treasury amounted roundly to

\$325,000,000, the total gold stock of the country having increased in the year \$50,000,000.

The Imperial Bank of Russia, wholly owned by the government, exhibits tremendous financial strength in its present position. A statement issued a few days ago showed in round figures that the bank held cash in hand amounting to more than \$150,000,000, while in addition to that it held \$200,000,000 of gold bonds, and possessed a balance of \$84,000,000 of gold held for its account in banks outside of Russia.

Many Domestic Loans.

Japan's debt is but little more than a fraction of Russia's. Its total was, before the impending domestic issue, \$50,000,000. By far the greater part of that is in the form of domestic loans.

If the war is to be of long duration, however, Japan will need funds from outside her own realm; and if the struggle settles down to one so long continued that the question of national credit becomes of the very first importance, as it may, Japan must be in the end at great disadvantage in any competition with Russia in the money markets of the world.

Czar Is the Strongest.

Taking it all in all, Russia's superiority from a financial point of view must be clearly admitted.

The difficulties of her finance minister will be less than will the difficulties of the Japanese treasury, but Japan can count upon great national enthusiasm at home which will provide at first for her financial needs, and she will be able undoubtedly at some price to float bonds in London, and might possibly even find a market in this country.